UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/766,980	01/29/2004	Joachim Schmidt	2133.018USU	4396

7590 04/27/2009

Charles N.J. Ruggiero, Esq.
Ohlandt, Greeley, Ruggiero & Perle, L.L.P.
10th Floor
One Landmark Square
Stamford, CT 06901-2682

EXAMINER	
BARON, HENRY	

ART UNIT	PAPER NUMBER
2416	

MAIL DATE	DELIVERY MODE
04/27/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/766,980	SCHMIDT, JOACHIM	
	Examiner	Art Unit	
	HENRY BARON	2416	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Detailed Action

METHOD AND APPARATUS FOR MONITORING SAFE TRANSMISSION OF DATA PACKETS

Response to Arguments/Remarks

1. Claims 1 – 22 are pending in the application. Claims 1, 9, and 22 are currently amended.

2. As a preliminary matter, the Examiner withdraws the objection to the format and Applicant of the Arrangement of the Specification in view of the Applicant's preliminary amendment filed 1/28/2004.

3. Applicant's arguments filed 02/06/2009 have been fully considered but they are not persuasive.

4. Applicant argues that amended claims 1, 9 and 28 now cite elements not disclosed or suggested by the proposed combination of Soltysiak and Abramovitch. In particular, in the present application claim 1 recites in part '…before the respective data packet is *completely {Examiner's italic}* received….', where Soltysiak counts a number of errors *once {Examiner's italic}* these transmissions are complete and not *before {Examiner's italic}* as claimed. Further Applicant submits that for determining a bit error, the respective BIP-8 and the belonging payload data must be completely received.

5. Examiner replies that both Soltysiak and Abramovitch account for bit errors, but neither reference are precluded from determining whether the packets have been transmitted correctly or not before the respective data packets are received as the Applicant asserts. In addition, as Applicant has cited, the claim calls for determining whether the payload was transmitted correctly or not before the respective data packet is completely received, can be interpreted broadly as 1) the payload and CRC are first incompletely received by the network subscriber i.e. before is completely received; 2) the payload is checked using the cyclic redundancy check CRC i.e. still incomplete reception; 3) the CRC determines a) if the payload 'incompletely' received is correct or not i.e. still incomplete reception; 4) the payload is logged as 'correct or incorrect' and after the log, the reception is complete.

6. Further, examiner notes, Applicant cites both Soltysiak and Abramovitch, but not Denton. To further substantiate the response above, Denton U.S. Patent Application 20030179777 was and is cited in this office action of teaching of pre-configured pairs of test packets for transmission to a downstream receiver. Upon reception of the test data packet, payload data is checked for bit errors, and the number of errored packets, i.e., test packets having errors in one or more bits, is saved in saturating 16-bit registers. More particularly, FIG. 3 provides a framework for the understanding of test generator 100, wherein expected test data packets are generated in the receiver so that they may be compared; by monitor logic block 312 to the test data packets that are actually or completely received received.

7. Applicant argues that independent claim 1 has been clarified to recite the steps of "transmitting a defined data record in addition to the payload data within the payload data block", where the defined data record is used to "determine incorrectly and correctly transmitted payload data" where, Soltysiak discloses the BIP-8 byte B1, B2, or B3 that is used for error checking is within the header of the respective packet or frame as shown in Figure 2, but not within the payload data block in addition to the payload data itself as now recited in claim 1.

8. Examiner replies that for a data packet, the boundary between the header and payload is a matter of interpretation, where typically the header contains control information related to transport e.g. source/destination address and the payload contains everything else. Thus a defined data record in addition to the payload data within the payload data block could be interpreted as CRC which Applicant admits is 'known per se', Specification - see ¶ 29. Denton is cited below to teach of such a data record.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> a. A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary

skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 1 – 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Soltysiak, et al, (U.S. Patent Application 20030021234), hereafter Soltysiak, in view of Abramovitch et al. (U.S. Patent Application 20030063566), hereafter Abramovitch and in further view of Denton (U.S. Patent Application 20030179777.)

11. Regarding Claim 1, 9, and 16, Soltysiak teaches an apparatus, a network having a apparatus and method for monitoring a transmission of data packets between at least two network subscribers (Figure 4), comprising of a safety-based monitoring of an error-based limit value (2: [0012] read detection threshold) being carried out on a transmission medium (1: [0006] read SONET) for response to identified incorrectly transmitted data packets and identified correctly transmitted data packets (1: [0008] read BER e.g. bit error rate); transmitting a data record within a payload data in each data packet; (Figure 1; SONET STS frame).

12. With regards to the limitation 'before the respective data packets are completely received by the at least one network subscriber', Soltysiak, 'packets' are the embodiment of 125 μsec synchronous transport signal (STS) frame where the packets or frames are multiplexed together to form STS-n frames in the hierarchy at multiple (n) data rates (1:[0006] read description of STS/SDH signaling). As the packets or frames traverse Soltysiak's bit error rate detector, for different periods of time, as shown in Table 1, and depending on the volume of data transmitted, the BER threshold can be crossed (or not) or a determination whether data packets have been transmitted correctly or not before the respective data packets are received by at least one network subscriber.

13. Examiner notes that determining whether the payload was transmitted correctly or not before the respective data packet is completely received, can be interpreted broadly as 1) the payload and CRC are first incompletely received by the network subscriber i.e. before is completely received; 2) the payload is checked using the cyclic redundancy check CRC i.e. still incomplete reception; 3) the CRC determines a)

if the payload 'incompletely' received is correct or not i.e. still incomplete reception; 4) the payload is logged as 'correct or incorrect' and after the log, the reception is complete.

14. Soltysiak's teaching are directed to a method and apparatus for a burst tolerant excessive bit error rate alarm detection and does not disclose the expected data record element, i.e. data record element expected by at least one network subscriber that can be used to determine whether a data packet has been transmitted correctly. Soltysiak also does not disclose transmitting a data record within a payload data in each data packet where each data records is expected by at least one network subscriber and used to determine whether the data packets have been transmitted incorrectly or correctly;

15. By contrast, Abramovitch teaches in the context of multiplexing and de-multiplexing communication channels for devices under test (DUT). (1: [00003]) of sending an expected data record between two network subscribers. In Abramovitch an expected data record is generated (2: [0015] read pattern generator that generates pre-determined pattern for input to DUT). The expected data record is transmitted across the DUT and received by one network subscriber i.e. the analyzer that compares the received data to the known pattern. (2: [0015] and Figure 1). Abramovitch teaches that the DUT is effectively a transmission media across which an expected data record is sent and received. Abramovitch teachings are not restricted to DUT, but to telecommunication format such as SONET or SDH and their packet formats. (2: [0017], 4: [0034] and 5: [0036]).

16. Denton teaches transmitting a data record within a payload data in each data packet where each data records is expected by at least one network subscriber and used to determine whether the data packets have been transmitted incorrectly or correctly. (2:[0036] read illustrative test generator 100 generates, at least, pre-configured pairs of test packets for transmission to a downstream receiver. These test packets can be used to determine the bit error rate and/or to establish the connectivity of a link. … In the illustrative embodiment of the test generator, four types of payload data i.e. data records in payload, are supported. The four types of payload data include, but are not limited to, 2[circumflex over ( )]16

pseudorandom data patterns, incrementing data patterns, data patterns that are all logic ones, and data patterns that are all logic zeroes. Upon reception of the test data packet, payload data is checked for bit errors…and 3:[0040] read More particularly, FIG. 3 provides a framework for the understanding of test generator 100, wherein expected test data packets are generated in the receiver so that they may be compared, by monitor logic block 312 to the test data packets that are actually received.)

17. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the excessive bit error rate alarm detection teachings of Soltysiak with the pattern generation and analysis teachings of Abramovitch and packet payload verification teachings of Denton in order to improve the reliability of critical data delivery.

18. This modification would enable critical data to be reliably and expediently delivered over a noisy communication channel with the recognition of the expected data record by a receiving network subscriber. This delivery mechanism is advantageous, as the receiving network subscriber need only match the expected data record to its stored record in order to proceed with an action. This is more efficient then receiving the entire packet and subsequently decoding it e.g. CRC.

19. In reference to claim 20, Soltysiak modified teaches the limitation of claim 9, but does not disclose wherein the means for determination responds to check records.

20. Denton teaches wherein the means for determination responds to check records. (3: [0040] read More particularly, FIG. 3 provides a framework for the understanding of test generator 100, wherein expected test data packets are generated in the receiver so that they may be compared, by monitor logic block 312 to the test data packets that are actually received. i.e. means for determination responds to check records)

21. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the excessive bit error rate alarm detection teachings of Soltysiak with the pattern

generation and analysis teachings of Abramovitch and packet payload or record verification teachings of Denton in order to improve the reliability of critical data delivery.

22. This modification would enable critical data to be reliably and expediently delivered over a noisy communication channel with the recognition of the expected data record by a receiving network subscriber. This delivery mechanism is advantageous, as the receiving network subscriber need only match the expected data record to its stored record in order to proceed with an action.).

23. In reference to Claim 2 and 10, in 2: [0022] (read detection time base TBDV and detection threshold THDV), Soltysiak teaches evaluating identified incorrect data packets and identifying correct data packets in each definable time interval. (1: [0007] i.e. BIP-8).

24. With regards to Claim 3 and 19, Soltysiak teaches of forming a ratio of identified incorrect data packets to identified correct data packets. (3: [0029] read resettable frame and error counter of state machine).

25. In reference to Claim 4 and 11, Soltysiak teaches of STS frame (Figure 1) with transport overhead and the synchronous payload envelope (i.e. STS-1 envelope capacity). The pre-defined record or pattern-generated data of Abramovitch or address records can be incorporated into the synchronous payload envelope.

26. In reference to Claims 5 and 12, Soltysiak teaches the monitoring is carried out on the basis of a discrete transmission channel without any memory by means of a functional relationship (3: [0026] and Figure 3) and in based on a Bernoulli distribution, between the probability of receiving an incorrect data record of a specific length ((1: [0011] code violation count) and a maximum error rate which can be predetermined. (2: [0024] read Bernoulli distribution as discrete periodic or random distribution of errors and Table 2 for pre-determined maximum error rate and time).

27. With regards to Claim 6 and 13, Soltysiak modified teaches the limitations of claim 1, but does not disclose the error-based limit value is defined as a product of an error rate, which is or can be predetermined, and a number of bits within the expected data record.

28. Abramovitch teaches the error-based limit value is defined as a product of an error rate, which is or can be predetermined, and a number of bits within the expected data record. (4: [0034] In this tester, the bit error test patterns are typically of the order of 3000 bits or larger. For example, a common desirable test frame for telecommunications equipment vendors is a SONET frame. A SONET frame for the emerging OC-768 standard would involve more than 4 million bits. Furthermore, a test sequence may include multiple copies of such frames. The analyzer uses the 48 bits to synchronize the analyzer and generator channels i.e. a number of bits within the expected data record,. assuming that the corresponding channels are connected. Hence, a parallel channel bit error rate tester according to the present invention can be implemented on such a tester by inserting a control code that performs the channel identification and rewiring prior to switching to the synchronization and test phases that are normally implemented on this tester.).

29. It would have been obvious at the time the invention was made to a person of ordinary skill in the art to modify the teachings of Soltysiak with the teachings of Abramovitch.

30. In this way a uniform metric can be used to derive a bit error rate by sampling a representative number of bits in the data stream to determine the error rate before all of the data has been transmitted.

31. With regards to Claim 7, 14, and 21, Soltysiak modified teaches the limitations of claim 1, but does not disclose monitoring performed by at least one slave or monitoring subscriber.

32. Abramovitch teaches the monitoring performed by at least one slave or monitoring subscriber (Figure 1 i.e. error analyzer) and/or at least one master or waiting subscriber. (Figure 1 i.e. pattern generator) with means to transmit appropriate information.

33. It would have been obvious at the time the invention was made to a person of ordinary skill in the art to modify the teachings of Soltysiak with the teachings of Abramovitch.

34. In this manner, data can be monitored in a hierarchal manner.

35. With regards to Claims 8 and 15, Soltysiak modified teaches the limitations of claim 9, but does not disclose monitoring wherein the means for determination is associated with network subscribers, which are designed to transmit appropriate information to at least one monitoring subscriber in response to identified incorrect and correct data packets.

36. Denton teaches monitoring wherein the means for determination is associated with network subscribers, which are designed to transmit appropriate information to at least one monitoring subscriber in response to identified incorrect and correct data packets. (3:[0039] read .. FIG. 3, a block diagram showing additional details of exemplary test generator 100, illustrates the relationship of a receive state machine 306 to first packet header register set 302, second packet header register set 304, a first payload generator 308, a second payload generator 310; the relationship of first payload generator 308, and second payload generator 310, to a monitor logic block 312 i.e. one monitoring subscriber, the relationship of receive state machine 306 i.e. response to identified incorrect and correct data packets, to monitor logic block 312, and the relationship of monitor 312 to an error counter 314.).

37. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the excessive bit error rate alarm detection teachings of Soltysiak with the pattern generation and analysis teachings of Abramovitch and packet record monitoring verification teachings of Denton in order to improve the reliability of critical data delivery.

38. This modification would enable critical data to be reliably and expediently delivered over a noisy communication channel with the recognition of the expected data record by a monitoring receiving network subscriber that compares received data with the expected data and then to proceed with an action.).

39. In regards to Claim 17, Abramovitch teaches a network comprised of a bus system that is in the form of a line. (Figure 1 a network comprised of a bus system that is in the form of a line.).

40. In reference to Claim 18, Abramovitch teaches the use of a network comprising a function selected from the group consisting of: for the process industry and for the manufacturing industry as the DUT in the network can be for example, semiconductor processing (testing) and/or for card manufacturing. (Abstract and 1: [0004]).

41. Regarding claim 22, Soltysiak teaches a method for monitoring a transmission of data packets, each of which having a payload data, to network subscribers, comprising of performing a safety-relevant verification of the transmission with respect to compliance with an error-based limit value before the transmitted data packets are completely received by the intended network subscribers (2: [0012] read detection threshold).

42. With regards to the limitation 'before the respective data packets are completely received by the intended network subscribers, Soltysiak, 'packets' are the embodiment of 125 μsec synchronous transport signal (STS) frame where the packets or frames are multiplexed together to form STS-n frames in the hierarchy at multiple (n) data rates (1:[0006] read description of STS/SDH signaling). As the packets or frames traverse Soltysiak's bit error rate detector, for different periods of time, as shown in Table 1, and depending on the volume of data transmitted, the BER threshold can be crossed (or not) or a determination whether data packets have been transmitted correctly or not before the respective data packets are received by at the intended network subscriber.

43. Soltysiak does not performing a safety-relevant verification of the transmission with respect to compliance with an error-based limit value by checking a transmitted data record against the expected data record.

44. Abramovitz teaches where the expected data record is transmitted across the DUT and received by one network subscriber i.e. the analyzer that compares the received data to the known pattern. (2:[0015] and Figure 1).

45. Further, Denton teaches embedding an expected data record in addition to the payload data within the payload data block of the data packets; and performing a safety-relevant verification of the transmission with respect to compliance with an error-based limit value by checking a transmitted data record against the expected data record. (2:[0036] read illustrative test generator 100 generates, at least, pre-configured pairs of test packets for transmission to a downstream receiver. These test packets can be used to determine the bit error rate and/or to establish the connectivity of a link. … In the illustrative embodiment of the test generator, four types of payload data i.e. data records in payload, are supported. The four types of payload data include, but are not limited to, 2[circumflex over ( ) 16 pseudorandom data patterns, incrementing data patterns, data patterns that are all logic ones, and data patterns that are all logic zeroes. Upon reception of the test data packet, payload data is checked for bit errors…and 3:[0040] read More particularly, FIG. 3 provides a framework for the understanding of test generator 100, wherein expected test data packets are generated in the receiver so that they may be compared, by monitor logic block 312 to the test data packets that are actually received.)

46. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the excessive bit error rate alarm detection teachings of Soltysiak with the pattern generation and analysis teachings of Abramovitch and packet payload verification teachings of Denton in order to improve the reliability of critical data delivery.

47. This modification would enable critical data to be reliably and expediently delivered over a noisy communication channel with the recognition of the expected data record by a receiving network subscriber. This delivery mechanism is advantageous, as the receiving network subscriber need only

match the expected data record to its stored record in order to proceed with an action. This is more efficient then receiving the entire packet and subsequently decoding it e.g. CRC.

FINAL ACTION

48. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

49. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Conclusion

50. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent Application 20030181998, Device for reliably generating signals, teaches many of the concepts of this application. See, in particular (2: [0014]) ".. Monitoring means 20 checks if incoming trigger signal 18 matches an expected trigger signal.."

51. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Henry Baron whose telephone number is (571) 270-1748. The examiner can normally be reached on 7:30 AM to 5:00 PM E.S.T. Monday to Friday.

52. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on (571) 272-3174. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

53. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/H. B./
Examiner, Art Unit 2416
HB

/Kevin C. Harper/

Primary Examiner, Art Unit 2416